AIR COMMAND AND STAFF COLLEGE

AIR UNIVERSITY

DECISIVE HALT 1942:

by

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A Research Report Submitted to the Faculty

In Partial Fulfillment of the Graduation Requirements

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Maxwell Air Force Base, Alabama April 1998

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6. AUTHOR(S) Cotts, Christopher D.;			5d. PROJECT NUMBER		
Cotts, Christopher D.,				5e. TASK NUMI	
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15. SUBJECT TERMS					
16. SECURITY CLASSIFICATION OF:		17. LIMITATION OF ABSTRACT Public Release	NUMBER OF PAGES 53	Fenster, Lynn lfenster@dtic.mi	
a. REPORT b. ABSTRACT c. THI Unclassified Unclassified Unclas	S PAGE ssified			19b. TELEPHOI International Area C Area Code Telephor 703767-9007 DSN 427-9007	Code

Standard Form 298 (Rev. 8-98) Prescribed by ANSI Std Z39.18

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Preface

Like all space-limited research projects, this paper represents a series of compromises. In this case, the primary result of these compromises is that much of the rich detail of the air, sea, and land battles for Guadalcanal has necessarily been jettisoned in favor of an operational view. Tactical details and strategic factors are included only insofar as they directly affected or were affected by the operational level of war at Guadalcanal. Unfortunately, this may leave the reader with a somewhat sterile appreciation for the efforts of the men on both sides who planned, fought, and died in the Eastern Solomons contesting the right to possess a sliver of malarial jungle thousands of miles from the homelands of any of the participants.

For a better appreciation of the tactical and strategic issues involved, all of Eric Hammel's several books on various aspects of the operation are worth reading. However, for the best appreciation of the human dimension, there are no finer works than James Jones' entirely fictional account, *The Thin Red Line*.

Many thanks to Lt Col Mark Wheeler of the Air Command and Staff College faculty and to Mr. John Stillion of RAND Corporation for their careful review and suggestions. Thanks especially to Lt Col Joe Udemi, my faculty research advisor, for his careful stewardship of this project. His efforts improved this paper tremendously.

Of course, any errors or omissions are mine and not theirs.

Abstract

The recent Report of the Quadrennial Defense Review outlines an increased need to execute "Halt Phase Operations," defined as the halt of an enemy invasion of friendly territory before the enemy reaches his strategic goals. In order to meet this challenge, the QDR panel proposes a force that relies on the Revolution in Military Affairs to leverage increased military capability from a smaller force. Other agencies, in particular the United States Air Force, have proposed that Halt Phase operations can best be executed by modern airpower. Unfortunately, this assertion is not borne out by current military combat models.

Therefore, this study examines a historical example, the World War II Guadalcanal campaign, to examine the Halt Phase and develops some critical issues for this key phase of battle. First, trading mass for technological superiority increases the risk of failure under a wide range of circumstances. Second, sound operational force employment is also a key to victory, a major problem in a two-major theater war scenario. Third, sustainment capability is crucial. Fourth, multi-dimensional combat capability provides a war-winning edge. Failure to heed these conclusions may not risk outright defeat but does increase the possibility of failure in the Halt Phase and a reversion to attrition warfare—exactly the situation the American strategy and operational forces are designed to avoid.

Chapter 1

You Say You Want a Revolution...

In an important sense... U.S. military policy remains imprisoned in an unresolved dialectic between history and technology, between those for whom the past is prologue and those for whom it is irrelevant.

—Lt Gen Paul Van Riper and Maj Gen Robert Scales "Preparing for War in the 21st Century"

During the last decade, Americans have witnessed rapid and profound changes in military threats and capabilities. Unsurprisingly, any number of agencies have in mind sweeping changes for the United States military to meet new challenges. For instance, the recently completed Report of the Quadrennial Defense Review (QDR)—the Department of Defense's own look the military of the next 18 years—contains a comprehensive reassessment of our nation's security requirements. Examining a wide variety of issues, the QDR's most important recommendations are in the separate, but related, arenas of strategy and force structure. The strategy, dubbed Halt Phase strategy, is an appreciation for the need to bring an attacking enemy to an early, decisive halt short of his strategic objective. The second key element of the report is a significantly reduced force structure—the savings going to pay for development and integration of technology that will, theoretically, enhance the lethality of the smaller force. Though not the most radical view of future needs (indeed, some of its more progressive critics have called it a "banal defense of the status quo"¹), the QDR report is certainly revolutionary enough that conservative commentators have characterized it as "too risky" and "shortsighted."²

In fact, the QDR is a mix of the reactionary and revolutionary. For instance, the QDR report leaves intact the requirement to fight and win two near-simultaneous major theater wars (the new term for major regional conflicts), a specific hold-over from previous quadrennial reviews. Shifting emphasis slightly from previous reviews, the QDR report places a greater premium on halting an aggressor short of his objective. Theoretically, a victory in the Halt Phase (an idea explored further in this paper) will reduce the price in blood and treasure that must be paid to reclaim territory captured by enemy forces, so the Halt Phase is elevated to the central consideration in operational planning. Most significantly, and most controversially, the QDR report proposes to build a technologically advanced force, financed by reductions in force structure. Again, criticism has come from two sides, those whose ox is being gored on one side and those who believe the ox isn't being gored quickly enough on the other.³

Among the least pleased about the outcome of the QDR is the United States Air Force, and no wonder. Under the QDR recommendations, the Air Force will lose one fighter wing equivalent in the Regular Air Force and almost a quarter of the planned aircraft purchases in one of the Air Force's most cherished programs, the F-22 Raptor.⁴ Air Force criticism of the QDR rests on a view that has held remarkably consistent for three generations—airpower is under appreciated because the defense establishment misunderstands its capabilities. In 1934, Claire Chennault laid blame for under-appreciation of airpower to "blind opposition to the significance of airpower by the foggy-brained brass of the Army and Navy..." Now the criticism is similar, if more politely expressed. One Air Force critic of the QDR process says, "Defense community acceptance of new concepts is a slow moving train...On the whole, the defense community has underestimated the contribution of airpower..." This particular critic attributes the

shortsightedness, in part, to automated models that do not correctly account for the full effect of airpower in the modern battlespace. ⁶

If we accept the Air Force critics' concerns statement at face value, we must search for another way to evaluate the relative contributions of various elements to the Halt Phase strategy. Perhaps an examination of the historical record can illuminate the truth. While historical examination has its own limitations, certainly it can't be any more flawed than models "that do not meet the test [of] hard-nosed realism about airpower's capabilities." Indeed, in many ways, historical analysis may be superior to modeling because the historical record is transparent. Models are hostage to their internal assumptions, many of which may be hidden from the observer under opaque layers of programming and coding. If one disagrees with the results, it's nearly impossible to examine the validity of the modeling assumptions without a great deal of technical knowledge. Conversely, if one disagrees with the conclusions of a historical study, one is free to examine the historical record independently.

Examining the historical record during World War II operations at Guadalcanal, this paper explores various claims about the effectiveness of modern forces during the Halt Phase, especially regarding operations during two Major Theater Wars (MTWs). At Guadalcanal, under circumstances that very closely parallel our current circumstances, the Japanese fought a Halt Phase battle against a determined enemy advance by American forces. While the Japanese had both superior technology and general superiority in forces and materiel, they failed to stop the American offensive. Examining the startling Japanese failure and the American success reveals a number of cautions as we ponder the 21st Century security environment. First, under the current circumstances, the role of technology may be overplayed—especially when we show a manifest willingness to sacrifice force structure to pay for untried technological advances.

Furthermore, poor operational employment of forces tends to undercut technological advantage, and sustainment capability remains critical to successful operations. Moreover, a multidimensional approach tends to overcome even the most technologically advanced singledimension force. Most important, failure to appreciate these truths can lead to precisely the type of attrition warfare we seek to avoid and can ill-afford. The Guadalcanal story strongly suggests that neither those who press for a high-technology force at the expense of force structure nor the vocal proponents of airpower are correct.

Notes

¹ Franklin C. Spinney, "Quadrennial Defense Review: What Went Wrong? How to Fix It" (Version 2.3) Unpublished Paper, 20 June 1997, 2.

² John A. Tirpak, "Projections from the QDR," *Air Force Magazine*, August 1997, 42.

³ Nathan French Caldwell, Jr., "Faint Praise: National Defense Panel Assesses QDR," *Sea* Power, July 1997, 47.

⁴ Jane's Defence Weekly, "Pentagon Says QDR Findings Will Delay F-22," 20 August 1997, 6.

⁵ Claire L. Chennault, *Way of a Fighter* (New York: G. P. Putnam's Sons, 1949), 18.

⁶ Lt Col Steve McNamara, "Assessing Airpower's Importance," Armed Forces Journal International, Marc 1997, 36.

⁷ Ibid.

Chapter 2

Examining the QDR

[W]hile the prospect of a horrific, global war has receded, new threats and dangers—harder to define and more difficult to track—have gathered on the horizon. It is the duty of America's policy makers to comprehend the nature of these threats and devise appropriate strategies and programs to defuse or defeat them.

—William S. Cohen Report of the Quadrennial Defense Review

Decisive Halt

A key element of the QDR is a new strategy for defeating aggression. Modern-day planners parse our nation's battles into four phases—the Halt Phase, the Build-Up Phase, the Counter-Attack Phase, and the post-victory Stabilization Phase. This canonical four-phase scenario assumes an aggressive enemy attack against another nation. During the Halt Phase, friendly forces will attempt to stop the enemy short of their strategic objectives and hold them at bay. During the Build-Up Phase, additional friendly forces arrive in theater to counter enemy aggression and prepare to evict the enemy from friendly territory. During the Counter-Attack Phase, friendly forces attack to destroy the enemy and force his ultimate retreat. Finally, with the enemy defeated, some military forces will remain in theater for an indeterminate to stabilize the region. Even a casual observer can see this pattern in the Gulf War with Iraq. In 1990, the Iraqis rapidly seized Kuwait before American and allied forces could halt the advance. Leaving aside the vexing question of failures in diplomacy and strategic warning, the first few days of

Iraqi operations represented America's best and least-costly opportunity to deny Saddam Hussein the fruits of his aggression. Having, lost the opportunity to prevail in the Halt Phase, a five-month build-up ensued, and allied forces counter-attacked to eject Iraqi forces from Kuwait. Finally, after the confrontation, the United States and her allies entered into a Stabilization Phase of as-yet-undetermined length.

This four-phase conception of battle received its earliest articulation in the Clinton Administration's Bottom Up Review (BUR) of 1993. Significantly, the BUR emphasizes the importance of the Halt Phase: "[T]he more territory the enemy captures, the greater the price to take it back." Specifically, the BUR describes the Halt Phase as a combined-arms operation, taking advantage of ground, naval, and air forces to stop enemy aggression as rapidly as possible. Although the BUR report goes on to discuss the other three phases of operations, the clear emphasis is on halting aggression at the earliest possible moment.

The Report of the Quadrennial Defense Review is even more emphatic about the importance of the Halt Phase. Of the three "particularly challenging requirements" for fighting and winning MTWs, the first listed is, "the ability to rapidly defeat enemy advances short of their objectives..." Calling this ability "absolutely critical," the report goes on to emphasize consequences of failure during the Halt Phase. "Failure to halt an enemy invasion rapidly can make the subsequent campaign to evict enemy forces from captured territory much more difficult, lengthy, and costly. It could also weaken coalition support, undermine U.S. credibility, and increase the risk of conflict elsewhere." Reflecting the new importance of the Halt Phase, the report contains no reference to the other three phases of operations. The Halt Phase is now the central planning consideration for MTWs.

At the same time the Halt Phase is gaining in significance in our strategic thinking, the Air Force is redefining its role in the strategy. The BUR conception of a combined-arms effort against an aggressive enemy is giving way to an emphasis on the central role of airpower during Halt Phase operations. In his testimony to the House Committee on National Security regarding the QDR, then-Chief of Staff of the Air Force, General Ronald R. Fogleman said, "The [national military] strategy includes a new special emphasis on the critical importance of an early decisive halt to armed aggression—an area in which air and space forces have a disproportionate value."5 Fogleman, seldom noted for overstatement, received little or no challenge to his comment, but it represents a major divergence from the BUR concept of a combined arms effort to halt an aggressor force. Major General Charles Link, General Fogleman's special assistant for the national defense review during the QDR, is more emphatic. "We can do that [halt an aggressive enemy], pretty much, with modern airpower...That counter-offensive which we used to think had to happen in 'x' number of days, is no longer as time-sensitive....It's no longer just a point in the military plan that has to be honored because somebody says, 'We're going to do it on Day 62." 6 Not surprisingly, in Air Force thinking, airpower leaps to the fore in this critical phase of campaigning.

A Revolutionary Force Structure

Another key element of the QDR report is a reduced force structure that takes advantage of a notional Revolution in Military Affairs (RMA)—built around the idea that new technologies can be integrated into the force, resulting in enhanced capabilities even with significantly fewer numbers. The proponents of this new force structure make extravagant claims for its effectiveness. "Baldly stated," says James R. Blaker, a leading proponent of the RMA force,

"U.S. military forces will be able to apply military force with dramatically greater efficiency than the opponent, and do so with little risk to U.S. forces." Welcome to the past.

Air planners made similar predictions in 1941. In the months before the United States entered World War II, General Henry H. "Hap" Arnold, Chief of Staff of the nascent Army Air Forces, commissioned his Air War Plans division (or "AWPD" in the alphabet soup of official Washington) to develop a plan for the rapid defeat of the Axis from the air. The AWPD saw the use of aircraft not merely as a technical improvement in the capability to wreak destruction on an enemy but as a fundamental change in the nature of warfare. Arnold's planning chief, Colonel Hal George, and his planners, all of whom had been together as instructors at the Air Corps Tactical School, envisioned a new type of war in which Airpower trumps all. Central to their thinking was a force of strategic bombers, acting independently of the other services, using the inherent mobility and offensive character of air forces to strike enemy targets without regard to the enemy's armed forces and, thus, to bring about the rapid collapse of the Axis without resort to the bloody, static trench warfare that characterized the Great War.⁸

Notably, the Air Force and the leading edge technologists of today are no longer one and the same, but otherwise, the parallels to the present could hardly be more striking. As the brinkmanship of the Cold War fades into memory and planners build a force for a new era, both the airpower advocates and the RMA proponents are laboring under assumptions remarkably like those that informed their forebears in 1941. Reinforced by the triumphs of technology during the Gulf War, and pressured to reduce military spending, the revolutionaries have turned again to the idea that technology trumps all. Stealth, precision, and mobility (all embodied by modern air forces) will overcome any enemy. The brevity of battle will obviate the need for well-developed, long-term logistical support for military systems. Finesse and dexterity will

overcome brute force and determination. The Secretary of Defense, in his introduction to the QDR report, predicts: "[T]echnology will transform the way our forces fight, ensuring they can dominate the battlefield with a decisive advantage at all times across the full spectrum of operations from peacekeeping and smaller scale contingencies to major theater war," which, of course, sounds much like the claims of the air planners in 1941.

Evaluating the Strategy

Such profound assertions bear logical examination. Yet, participants in the process cannot, even after the fact, agree on the right tools for this examination. For instance, General Link is "disappointed in our ability to model, simulate, and understand modern joint warfare and, particularly, the contribution that modern airpower can make." So, if Air Force leaders reject the validity of current models (and there is plenty of evidence to support their misgivings), historical study may be the only tool to examine the QDR assertions. Without a valid model or historical evidence, we're left with very little more than a mass of intuition and unsupported assertions.

For an examination of the Halt Phase, operations on and around Guadalcanal in 1942 serve very well. Although many historians see Guadalcanal as an American blocking attack to secure the lines of communication between the United States and Australia, the combat at Guadalcanal is quintessentially a Halt Phase battle from an operational and strategic perspective. After setbacks at the Battles of Coral Sea and Midway, the Japanese abandoned plans for a greater offensive in the South Pacific and had, in fact, settled in for a long defense of their rapidly won gains—a defense of the *status quo* if not the *status quo ante bellum*. Further operations were intended primarily to shore up the Japanese flanks and complete operations already underway. Indeed, the Japanese came to Guadalcanal almost by accident during some minor tactical

positioning in June and July of 1942.¹² Overall, according to Captain Y. Watanabe, the Gunnery and Landing Force Officer for the Japanese Combined Fleet staff, "We only planned to set up a protective wall extending from Singapore through East Indies [sic], Solomons, and the Marshalls Group to Kiska." For their part, the Americans were intent on reducing and capturing Rabaul, the hub of all Japanese military power in the South Pacific. A classic center of gravity, too strong to be attacked directly, Rabaul was the ultimate strategic objective of the campaign, and the Guadalcanal operation was the first of three tasks needed to accomplish the objective.¹⁴ Guadalcanal works as a historical model of the Halt Phase at the operational level as well. From an operational perspective, the Japanese sought to hold the Guadalcanal area, not to extend their reach from Guadalcanal, while the American objective was seizure and exploitation of the island and its environs.

Additionally, Guadalcanal is a good example for our purposes because it helps illuminate the role of technology on the battlefield while correcting for the sheer industrial capacity that allowed the United States to prevail in the war. Guadalcanal occurred on the cusp of a major technological revolution, much like today, when combatants on neither side clearly understood the implications of the new technology they wielded. Furthermore, examining Guadalcanal tends to "normalize" the ultimate disparity between the American and Japanese industrial capacity. Although America would win the Second World War on the strength of its ability to produce dizzying amounts of war materiel, Guadalcanal was fought before that industrial capacity came into play.¹⁵ Coming as it did, just eight months after America entered the war, precious few of the arms, especially ships and aircraft, employed by the United States were manufactured after Pearl Harbor. In fact, at the time, Japan enjoyed a meaningful superiority

over the Americans in quality and quantity of arms, especially in the number of aircraft and ships in the area of operations, facts which make the American victory that much more amazing.¹⁶

For the outcome of the Guadalcanal campaign was not determined by numbers of arms, nor was it determined, as the AWPD planners predicted, by resort to strategic bombing. Long before the Americans could threaten a single strategic target, Americans airmen would be committed to battles in the Pacific, and those battles would prove the underlying assumptions of the AWPD to be little more than Washington sophistry—the martial equivalent of determining how many angels can dance on the head of a pin. Technology would not prove decisive. The ability to sustain forces in the field would. Airpower would work not independently but in concert with other military forces. Most notably, the campaign was marked by the exact style of attrition warfare the "Professors of Airpower" had hoped to avoid.

Notes

- ¹ Colonel Harry G. Summers, Jr. , *The New World Strategy: A Military Policy for America's Future* (New York: Touchstone, 1995), 145-147.
- ² Les Aspin, Secretary of Defense, "Report on the Bottom Up Review," available on-line at http://www.usmma.edu/curr/dmt/bur.htm.
 - ³ Ibid.
- ⁴ William S. Cohen, "Report of the Quadrennial Defense Review" (Washington DC: Defense Printing Office, May 1997), 13.
- ⁵ General Ronald R. Fogleman, "Statement to the Committee on National Security," May 22, 1997, available on-line at http://:www.house.gov/nsc/97-5-22Fogleman.htm
- ⁶ Major General Charles D. Link, quoted in "The New View of Airpower," *Air Force Magazine*, Aug 1997, 50.
- ⁷ James R. Blaker, "The American RMA Force: An Alternative to the QDR," *Strategic Review*, Summer 1997, 22 (21-30)
- ⁸ Major General Haywood S. Hansell, *The Strategic Air War Against Germany and Japan* (Washington DC: Office of Air Force History, United States Air Force, 1986) 10-14.
 - ⁹ QDR, vi.
 - ¹⁰ Link, 50.
 - ¹¹ John Costello, *The Pacific War* (New York: Rawson, Wade Publishers, 1981) 316.
- ¹² Harry A. Gailey, *The War in the Pacific, From Pearl Harbor to Tokyo Bay* (Novato, Cal.: Presidio Press, 1995) 173-174.

Notes

- ¹³ Interrogation of Captain Y. Watanabe, United States Strategic Bombing Survey Interrogation Number 65, 15 October 1945, Typed Transcript, p. 65-8, File Number 137.73-4 in USAF Collection, Air Force Historical Research Agency.
- ¹⁴ Lt Col Gale E. Heaivilin, War Planning Assumptions and Errors in Military Strategy (Maxwell AFB, Ala.: Air University, March 1986) 28.
- ¹⁵ Although beyond the scope of this paper, see R. J. Overy's excellent *The Air War 1939-1945* (Chelsea, Mich., Scarborough House/Publishers, 1991) for a thoroughly documented exposition of the idea that it was the power of industry that prevailed in World War II.
- ¹⁶ Paul S. Dull, *Battle History of the Imperial Japanese Navy (1941-1945)* (Annapolis, Md.: Naval Institute Press, 1978) 197-199.

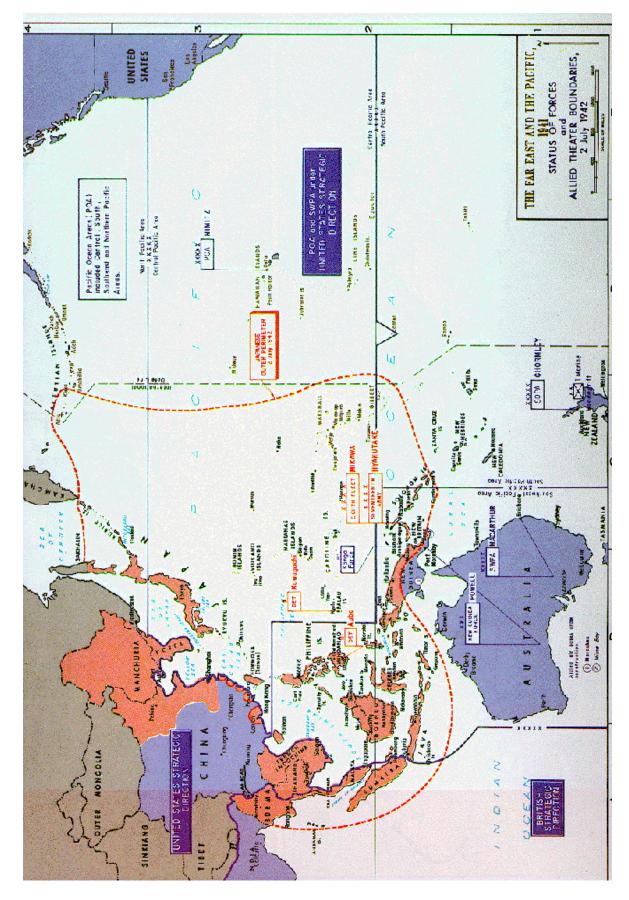


Figure 1. Pacific Situation in the Month Prior to Commencement of American Operations on Guadalcanal

Chapter 3

Guadalcanal: Halt Phase 1942

When an irresistible force such as you Meets an old immovable object like me, You can bet, sure as you live, Something's gotta give, something's gotta give, something's gotta give

—Johnny Mercer

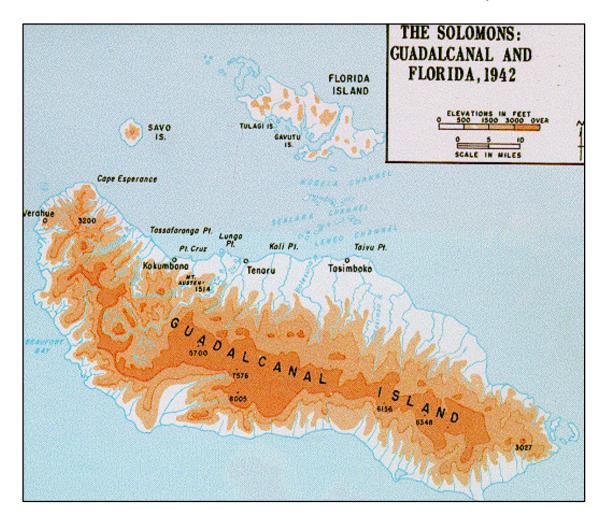


Figure 2. Guadalcanal and Environs

Preparations—July 1942

Located at the extreme eastern end of the Solomon Island chain (see Fig. 1), Guadalcanal was important precisely because of airpower. Like most of the Solomons, Guadalcanal was covered by dense triple-canopy jungle and dominated by a sharp spine of mountains running the down the long axis of the island (see Fig. 2). However, unlike her neighbors, Guadalcanal also possessed a priceless geographical feature—the Lunga Plain—large enough and flat enough to be developed into an airfield. Not coincidentally, the Japanese Navy was in the process of exploiting this feature even before the Allied campaign commenced.¹ The Americans became aware of this fact only after operational planning for the offensive was well underway. Rather than providing an impetus to attack, the soon-to-be-completed airfield added urgency to an effort that was already in progress.²

Attack—August 1942

Though generally without the careful design that characterizes modern warfare, coordinated multi-dimensional operations would mark the American effort at Guadalcanal from the beginning. As the landing forces went ashore on Guadalcanal and the neighboring islets of Gavutu, Tanambogo, and Tulagi, air operations both in the immediate vicinity and far afield helped ensure success. Carrier aviation in direct support of the landings made short work of the Japanese aircraft in the invasion area.³ Simultaneously, to reduce the follow-on threat, land-based air from Australia made a rare attack on Rabaul, destroying a significant number of aircraft from the only concentration of Japanese airpower that might immediately threaten the opening offensive.⁴ Without opposition from the air, and with close support from carrier aviation, the Americans had a

relatively easy time cleaning out the limited number of Japanese troops on the island, and by early afternoon, the nearly-completed airfield was in the Americans' hands. The airstrip, later to be named Henderson Field, was a priceless trophy that would, again and again over the coming months, make the difference between success and failure.⁵

The Japanese riposte, hastily assembled, showed all of the blundering and lack of coordination that would mark their long effort to halt the American offensive. Air forces on Rabaul collected themselves and mounted a long-range attack.⁶ Having lost over 50 percent of their bombers in the American air raid that morning, the Japanese were forced to bolster their offensive power with dive bombers that couldn't make the round trip.⁷ Mistiming the arrival of fighters and bombers, the Japanese Mitsubishi A6M fighters (better known in the vernacular as "Zeros") gave the generally inferior American fighters a terrific beating but also allowed American carrier aviation time to recover.⁸ The latearriving bombers were ineffectual and paid the price for mistiming, losing a good portion of their force to American fighters.⁹ For the steep price they paid, the Japanese utterly failed to achieve their objective of slowing, limiting, or averting the American offensive.

Given the poor results, the Japanese surprisingly gave a repeat performance the next day. Their air attack was slightly better timed, and the bombers were able to draw blood against some American warships, but they again paid dearly. Losing over half of their already-depleted bomber force (and reduced to less than a quarter of their pre-invasion striking power), the Japanese found their only air force capable of registering an effect on Guadalcanal rendered combat-ineffective. For the effort, the Japanese had precious little to show. However, they did spook the Americans into withdrawing their precious carrier force from the area, leaving the American invaders uncovered as well.

The Japanese failure to mount a coordinated attack went beyond the mistiming of air raids. At the same time the American carriers were headed for safer waters, the Japanese were bearing down on the American invasion force with a significant flotilla. In the Battle for Savo Island (named after the tiny islet that guarded the straits between Guadalcanal and Tulagi), the Japanese took a heavy toll on the American warships supporting the offensive without a single major casualty among their own forces. However, unaware that the American carrier force was headed over the horizon with alacrity, and without air support of their own, the Japanese decided to pocket their gains and go home. As much damage as they had done, the Japanese never laid a hand on the vital troop transports and, thus, were unable to terminate the invasion.¹²

Ironically, the Americans too found themselves forced to take into account a non-existent air threat. Following the carrier withdrawal they had no air cover of their own and were unaware of just how much damage they had done to Japanese airpower in the region. The Americans were forced to make the hard choice: remain to off-load the full complement of materiel and risk losing the priceless shipping or pull the flotilla back to safety and leave the Marines without all the supplies and equipment they had packed for the offensive. Protection of shipping won out. The American flotilla withdrew, leaving the Marines to a thin existence. Thus, the phantom threat of airpower served to limit both antagonists' combat effectiveness, imposing a virtual effect that was as real as if the American transports and Japanese warships had been destroyed. Had either side maintained a multi-dimensional combat capability, the result might have been decisive and the ultimate course of the operation vastly different.

The opponents took different tacks to remedy their shortfalls. Distracted by other operations, the Japanese were unable to rapidly rebuild their airpower, so they turned to nighttime shuttle runs of troops to the island—a regular effort that would eventually earn the sobriquet "Tokyo Express." Also typically, a destroyer might shell the Marine positions during the night but had to leave before daylight. Conversely, with the ability to work unmolested during the day, the Americans turned their attention to activating the Henderson Field. The task was not terribly arduous since the Japanese had done most of the work before the American landing, but the airfield would be both pivot point and linchpin over the next five months. By August 20, the Marines established an air operation that would ensure their eventual victory. In the short of the short of the stable of the short of the short of the stable of the short of t

The Guadalcanal flyers—who dubbed themselves the Cactus Air Force since the code-word for the island was "Cactus"—would get their first taste of combat on Guadalcanal less than 12 hours after they arrived but not in the air. Before the Tokyo Express could deliver Japanese forces sufficient for a decisive attack, the Americans discovered the growing concentration. Their cover blown, the Japanese decided to attack without waiting for the full combat party. In the ensuing Battle for Tenaru River, during a tough night and day of fighting, the superior number of Marines eventually prevailed over the Banzai gallantry of the Japanese. Thus, Japanese operational failures were already manifesting themselves at the tactical level. Had the Japanese been able to build their garrison on Guadalcanal faster, the odds in the battle would have been different, but lack of a multi-dimensional combat capability prevented the Japanese from rapid buildup and the weight of attack was with the Americans.

Though not a factor in deciding the outcome at Tenaru River, the American flyers would make their presence felt immediately thereafter. Hard on the heels of the Tenaru River battle, the Japanese sailed a sizeable task force to finish off the Americans once and for all. Consisting of two fleet carriers, a light carrier, a sizeable number of escort cruisers and destroyers, and troop transports designed to overwhelm the Americans, the Japanese indeed mustered considerable combat power. However, through superior surveillance and the slightest bit of luck, the Americans spotted the inbound task force. Rushing the fleet carrier *Enterprise* to the scene, the Americans managed to sink the Japanese light carrier and critically damage one of the Japanese fleet carriers, driving off the bulk of Japanese striking power while *Enterprise* herself sustained critical damage. ¹⁹

However, the real difference came in the sudden appearance of American land-based aircraft from Guadalcanal. Not only did they add their weight to the carrier attacks, they staked out and destroyed the troop-laden transport column. The capability to launch continuous strikes from land, rather than the cyclical operations typical of carriers, proved significant. Flying wave after wave of attacks, even after *Enterprise* was damaged, the Cactus fliers simply overwhelmed the enemy surface force.²⁰ Had the Japanese ground forces on Guadalcanal been prepared to attack Henderson field, they might have reduced the American ability to respond, but those forces had been wiped out three days earlier. Furthermore, had the Americans not brought aircraft aboard Cactus as rapidly as they did, there would have been no force left to exploit *Enterprise*'s success after the American carrier was crippled. The Japanese transports would have arrived at Guadalcanal, and the situation would have been dire indeed for the Americans. Thus, the ability to muster a multi-dimensional force worked in the Americans' favor, allowing

them to mass forces at the right point and lending an operational flexibility to the battlefield that would otherwise have been missing. Conversely, the Japanese, highly disciplined and well-armed as they were, were forced to attack from the sea and from the sea alone. Even with superior firepower, the operational brittleness imposed by single-dimension attack proved to be the Japanese undoing.

Gathering Combat Power—September-October 1942

With the Japanese attempt to blunt the offensive repulsed, the Americans were briefly free to gather their combat power. Navy aircraft from the injured *Enterprise* joined the air forces on Guadalcanal and meshed rapidly with the Army and Marine pilots already there.²¹ The great shortcoming of the force was in technological capability, especially among the all-important fighter aircraft. The Marine (and, later, Navy) F4F Wildcats were generally inferior performers when compared to the Japanese Zeros.²² However, compared to the Army's P-400 Airacobra, the Wildcat was a paragon of aviation virtue. A cheap knock-off of the generally unloved P-39, the P-400 could neither out climb, out turn, nor outrun an opponent.²³ Within a week of their arrival on Guadalcanal, only 3 of the first 14 P-400s sent to Cactus were flyable.²⁴

Still, with few other resources, the Guadalcanal forces had no choice but to use what they had. The Army continued to ferry P-400s to Guadalcanal in spite of poor performance, and the Airacobra eventually found a niche as a ground-attack platform, supplementing the Marine's thin artillery.²⁵ Moreover, the Wildcats and Airacobras teamed to cover their mutual weaknesses. The P-400s would act as bait for incoming Zeros, and once the Japanese committed to the attack, Wildcats would dive out of the sun and close the trap.²⁶ Such tactical innovations achieved a significant operational

effect, eroding the general numerical superiority the Japanese enjoyed and played to the American advantages in sturdiness of construction and proximity to home base. More than half of the American pilots shot down returned to combat. Fewer than 10 percent of the Japanese pilots were so lucky, a fact that came into play as the conflict extended.²⁷ Thus, the Japanese failure to squelch the offensive early was proving costly.

While the Americans built their forces on the island, the Japanese also prepared, rebuilding their battered air capability and slipping 3500 troops aboard Guadalcanal during nightly Tokyo Express runs.²⁸ Launching their ground attack on the night of September 12, the Japanese very nearly pushed the Americans off the island, but during the daylight, American air held the Japanese at bay and attrited the enemy forces. The Japanese had made no provision for air cover, so the American pilots were particularly effective. Although the Japanese gathered themselves for one more thrust the next night, the Americans held off the now-weakened force, killing over a thousand Japanese on the hill overlooking Henderson Field.²⁹ One more time, this the most costly so far, the Japanese inability to coordinate efforts made the difference between success and failure.

In the quieter periods, the brittleness of Japanese employment was costing them dearly as well. When the Americans weren't harassed by air, they were free to press the Japanese forces with coordinated air-ground attacks.³⁰ Then, during the daily Japanese air raid—so regular the Americans nicknamed it "Tojo Time"—the Americans could put the Japanese ground forces on hold and turn their attention to the air. The action on 27-28 September was typical. In two raids, the Japanese generated 45 bomber sorties with 75 fighter escorts, losing 12 bombers and 6 fighters while downing only a single American aircraft.³¹

Furthermore, without undisputed control of the sea around Guadalcanal, the Japanese were still limited in how rapidly they could build combat power on the island. More to the point, they were limited in how well they could sustain in-place forces. All troops and supplies came on the midnight Tokyo Express runs. It was as if the Japanese were driving a powerful vehicle with a governor on the engine. On the other hand, the Americans were able to continue building their forces, adding a Marine regiment with supporting artillery in mid-September and the first Army regiment in mid-October.

By that time, the Japanese briefly showed signs that they grasped the need to mount some sort of coordinated attack. On October 13, the Japanese launched a two-wave attack that knocked a significant portion of the American airpower out of the fight, followed that night by a devastating naval shelling of Henderson Field that just about polished off the Cactus Air Force.³² Simultaneously, as the Americans watched, the Japanese landed 4,500 additional troops³³ to bring their total to about 29,000.³⁴

Then, with momentum in their favor, the Japanese inexplicably returned to their old ways. They waited three full days to mount a ground attack, during which time the Americans ferried in aircraft around the clock from Southwest Pacific bases, and C-47 transport aircraft hauled in aviation fuel to replace the stockpiles that had been blown up during the Japanese attack.³⁵ By the time the Japanese did attack, the Americans had rebuilt their airpower enough to provide the winning edge. Besides providing vital close support to the embattled ground forces, American aviators downed over a hundred enemy aircraft in exchange for just 14 of their own.³⁶ Simultaneously, American carrier forces caught the Japanese Combined Fleet, standing by to support the re-occupation of Guadalcanal, in the open. Distracted by the air combat over the island, the Japanese

failed to detect the American carrier approach. In the ferocious Battle of the Santa Cruz Island, the Americans lost one of their two remaining fleet carriers, but they also destroyed another hundred enemy aircraft.³⁷ The Japanese had come very, very close to turning the tide. In fact, had they pressed forward while the Cactus Air Force was incapacitated, it's highly likely that they could have overcome the Americans. However, Japanese hesitation at the moment of decision allowed the Americans to recover their multi-dimensional dominance and prevail at great cost to the Japanese.

Pressing the Advantage—November 1942-February 1943

Now, more than ever, the Japanese and Americans were determined to be victorious at Guadalcanal, and following the October battles, both sides committed more forces to the fight. By November 12, the Japanese were again ready to make a strike, and they clearly understood the need to strike in a coordinated fashion. To open the attack, the Japanese sailed a powerful naval task force, bent on putting Henderson Field out of commission. By sheer bad luck, the Japanese sailed right into the main elements of a more-formidable American flotilla departing Guadalcanal after dropping American reinforcements. The savage sea battle that ensued (the First Naval Battle of Guadalcanal) produced an improbable victory for the Japanese and left the larger American force reeling. However, the tactical victory was an operational defeat. The Japanese raiding group was forced to withdraw, signally failing in its mission to eliminate the threat from Henderson Field and leaving American aircraft free to roam the area.³⁸

The Japanese inability to enforce some sort of multi-dimensional dominance or even to impair the American ability was disastrous. The Americans repeated their one-two punching technique of the October battles. American sea-based and land-based airpower

found and hammered the retiring Japanese striking group for a full day, severely damaging several Japanese warships and sinking a Japanese battleship—the first Japanese battleship lost due to enemy action during the Pacific war.³⁹ Unable to provide consistent air cover of her own, the Japanese were powerless to stop the destruction.

A desultory Japanese cruiser bombardment of Henderson Filed that night had no significant effect on American capabilities. The next morning, the American aircraft found the Japanese transport group, screened by a dozen destroyers, carrying 12,000 men and 10,000 tons of badly needed supplies. American air forces from as far away as Espiritu Santo took turns bombarding the transport fleet, sinking eight of the 12 transports. Though the remaining four transports would arrive at Guadalcanal and deliver most of their troops, the American air pressure would continue, destroying the bulk of the vital food and ammunition stocks, actually leaving the starving troops worse off than before—"a band of survivors rather than a military force."

That night, the U.S. Navy delivered the *coup de grâce*. Navy surface forces tracked down and smashed a Japanese striking force headed for Guadalcanal, sinking another battle-wagon and a destroyer. After this encounter, the Second Naval Battle of Guadalcanal, the Japanese would never again exert control of the seas in the Eastern Solomons. From there, it was a slow but inevitable decline for the Japanese. They never again mounted a serious challenge to the Americans on Guadalcanal, and they were eventually reduced to running supplies to the Japanese garrison by submarine or floating them ashore in barrels—hardly the way to supply a modern army in the field. Though the remaining Japanese fought gallantly for another three months, they were beaten, and

by early February, the American commander could telegraph, somewhat anticlimactically, "Tokyo Express no longer has terminus on Guadalcanal." 46

Notes

- ¹ John H. Bradley and Jack Dice, *The Second World War: Asia and the Pacific*, part of the "West Point Military History Series," Thomas E. Griess, Ed. (Wayne, New Jersey: Avery Publishing Group, Inc., 1985), 123.
- ² John Winton, War in the Pacific, Pearl Harbor to Tokyo Bay (New York: Mayflower Books, Inc., 1978) 67.
 - ³ Richard B. Frank, *Guadalcanal* (New York: Random House, 1990) 60.
 - ⁴ Geoffrey Perret, Winged Victory (New York: Random House, 1993) 429-430.
 - ⁵ Frank, 61.
 - ⁶ John Toland, *The Rising Sun* (New York: Random House, 1970) 353.
- ⁷ Thomas G. Miller, Jr., *The Cactus Air Force* (New York: Harper and Row, Publishers, 1969) 2-4.
- ⁸ Nathan Miller, *The Naval Air War, 1939-1945* (Annapolis, Md.: Naval Institute Press, 1991) 94.
 - ⁹ Toland, 354.
 - ¹⁰ Hammel, 99-101.
- Samuel Eliot Morison, *The Struggle for Guadalcanal, August 1942-February 1943*, Volume V of "History of United States Naval Operations in World War II" (Boston: Little, Brown, and Company, 1942) 30-32. The withdrawal of the carriers at such a crucial time is one of the most controversial decisions of the Pacific War, and Morison stops just short of calling the overall commander (Admiral Frank Jack Fletcher) a coward for making it. Others, particularly the subordinate commanders Fletcher left behind, are even less charitable in their own accounts.
- ¹² B. H. Liddell Hart, *History of the Second World War* (New York: G. P. Putnam's Sons, 1971) 358.
 - ¹³ Hammel, 125.
- ¹⁴ Robert Lawrence Ferguson, *Guadalcanal, Island of Fire* (Blue Ridge Summit, Penn.: TAB Books, Inc., 1987) 58.
- ¹⁵ Captain Henry H. Adams, 1942: the Year that Doomed the Axis (New York: David McKay Company, Inc.) 332.
 - ¹⁶ Winton, 71.
 - ¹⁷ Hammel, 178.
 - ¹⁸ Morison, 82.
- ¹⁹ Dan van der Vat, *The Pacific Campaign, World War II* (New York: Simon & Schuster, 1991) 221.
 - ²⁰ Morison, 104.
 - ²¹ Thomas G. Miller, 51-52.
- ²² See Hammel, 98, for a particularly telling account of the Zero's mastery of the Wildcat—during the first encounter between the aircraft at Guadalcanal, the Japanese fighter downed all five American fighters before the American ship-board fighter directors could even issue an instruction to the hapless pilots.

Notes

- ²³ Spector, 198.²⁴ "Pacific Counterblow," 22.
- ²⁵ Ferguson, 81.
- ²⁶ Perret, 430.
- ²⁷ Frank, 67-70.
- ²⁸ Toland, 371.
- ²⁹ General Merill B. Twining, USMC (edited by Neil Carey), *No Bended Knee*, the Battle for Guadalcanal (Novato, California: 1994) 98-102.
 - ³⁰ Ferguson, 147-148.
 - ³¹ Thomas G. Miller, Jr., 99-101.
 - ³² Craven and Cate 55-56.
 - ³³ Hammel, 326.
 - 34 Craven and Cate, 57.
 - 35 "Pacific Counterblow," 43-44.
 - ³⁶ Morison, 197.
 - ³⁷ Winton, 80.
 - ³⁸ Toland, 414.
 - ³⁹ Thomas G. Miller, 118
 - ⁴⁰ Frank, 465
 - ⁴¹ Adams, 366.
 - ⁴² "Pacific Counterblow," 53.
- ⁴³ Major General Alexander A. Vandegrift, First Marine Division Commander's Final Report on Guadalcanal Operations, "Phase V (18 Sep-5 Dec)" File Number 180.1-1, Part 5, p. 33 in USAF Collection, Air Force Historical Research Agency
 - 44 van der Vat, 236. 45 Adams, 370.

 - ⁴⁶ Spector, 214.

Chapter 4

The More Things Change...

My intent is not to imply that the concrete and statistical aspects of war should be either ignored or approached other than from the standpoint of the engineer. Rather, it is to insist that even though many of the elements that contribute to victory can (and must) be engineered, the "engineerable" parts do not generally comprise the whole.

—Lt Col Barry D. Watts *The Foundations of U.S. Air Doctrine*

Context—Geopolitics and Technology

As anticlimactic as the end may have been, Guadalcanal represents an incredible defeat for the Japanese and a significant victory for the Americans. The Japanese, having squandered their technological and material superiority through laughably poor tactics; an inability to support their forces in the field; and repeated, unsupported, single-dimension attacks were forever forced on the defensive at both the strategic and operational levels. The Americans, having made the most of their technologically limited, numerically inferior forces by sound operational employment, adequate (if not lavish) support, and the massed fires of multi-dimensional warfare, set the stage for an unbroken series of victories in the Southwest Pacific as MacArthur drove toward Japan. Notably, this victory had come about not in the bloodless, disconnected way predicted by the AWPD planners but in a grinding, cruel battle of attrition.

The significance of the Japanese failure and American success speak to us across the years, in part, because America finds herself in the same position the Japanese found themselves in 1941. The context of the battles around Guadalcanal represent the exact military and geopolitical circumstances for which current United States strategy is explicitly defined: two near-simultaneous MTWs. In addition to their battle against the Allies, the Japanese were simultaneously engaged in a war with China—a war that consumed a significant portion of Japan's combat capability. At the time of the Guadalcanal operation, the Japanese had committed nearly 37 divisions and a total of 850,000 men to the war against the Nationalists in China.¹ So, not only do the battles for Guadalcanal represent a Halt Phase operation, they also represent operations in "the second theater" during two MTWs, the most challenging scenario for which our modern forces must be prepared.

While the geopolitical context for Guadalcanal may be similar to our current situation, the technological context is clearly different. Regardless of technological superiority or inferiority, neither the Japanese nor the Americans had the range or firepower to freely attack anyplace in theater from any other place. Today, technological mastery has blessed the United States with the capability to strike anywhere at any time with a remarkable degree of precision. As Margaret Thatcher observed during a recent International Airpower Symposium, "No part of the globe is now beyond the reach of the power and precision of the United States Air Force." American technological superiority in matters military is unchallenged.

Technology and Mass

The mere existence of technological superiority begs the question of its value, and here the Japanese experience at Guadalcanal provides its first lesson. In the air, Japanese forces had a clear and measurable technological superiority over the American air forces. The Zero was the best, most maneuverable fighter available to either side in the Pacific at the time and so much superior to the F4F Wildcats that even American pilots had to admire it. Marine Major Ross Jordan, a Wildcat pilot recalls, "[T]he Zero flew so much better than the Grumman that some of our pilots never found themselves above [one]." And the Wildcat was the best of the lot. The P-400s were so bad that Admiral John McCain, the commander of air forces in the Solomons described them as "demoralizing to the brave men who fly them." Clearly, during the campaign, technology wasn't the driving factor in victory. Had it been so, the Japanese would have been masters of Guadalcanal by September 1942 and the American campaign in the Solomons would have died aborning.

Chief among the reasons the Americans were able to defeat the technologically superior Japanese force was the simple fact that the Americans consistently possessed more aircraft than the Japanese at the point of decision. From September 3, the Marines could muster a full wing of aircraft ready for operations on a nearly continuous basis, plus Army and Navy squadrons based on the island, and whatever carrier-borne aircraft might be available at any given moment. Spread across Asia and the Pacific, even the vast Japanese arsenal was strained. After the air forces at Rabaul were reduced in the first couple of days of the battle, the Japanese typically launched a couple dozen aircraft on a Tojo Time raid. As a result, the Cactus Air Force—technologically inferior as it

was, shot down 416 Japanese aircraft (and found, somewhere, the time to sink 21 Japanese ships) for a loss of 78 American aircraft.⁶ Because of the limitations of air cover and sea control, the Japanese also fought at a consistent disadvantage on the ground, achieving numerical superiority to the American forces only for a very brief period in November 1942.⁷ Although the Japanese outgunned the Americans on the high seas during the entire engagement, they never placed forces in the required position to be decisive.⁸ Thus, technological superiority wasn't as important as the ability to concentrate combat power at the decisive point. Guadalcanal underlines the oldest and most obvious lesson of warfare: mass matters.

Today, though, we're hanging our Halt Phase on a technological hook. The same QDR report that makes the Halt Phase central to our strategic planning proposes a force structure that explicitly trades numerical superiority for technological superiority. For instance, the QDR force structure slashes the F/A-18E/F buy from 1000 to 548 (or a potential maximum 785-aircraft buy under certain optional circumstances) and the F-22 procurement from 438 to 339. According to the QDR report, "The savings that will result will enable us to pay for the transformation of our forces required by the strategy." As persuasive as this line of reasoning may be rhetorically, it's starkly at odds with the historical record. The Guadalcanal experience strongly emphasizes the importance of mass, even on the modern battlefield. In and of itself, this isn't an argument against technological innovation. Rather, it points out that in specifically sacrificing numbers to pay for technology, we may impair our ability to apply mass at the point of decision in time to execute the Halt Phase, especially under the rigors of two near-simultaneous MTWs.

Operational Employment

Of course, in addition to their technological superiority, the Japanese also enjoyed a general numerical superiority in the South Pacific, but at Guadalcanal, the Japanese employed their forces in a fashion that undermined their own numerical advantage. For instance, in the air, instead of husbanding their resources for a time and a target that would be to their benefit, the Japanese squandered their assets in daily piecemeal raids, each one an opportunity for the Americans to whittle down the opposition just a bit more. The Japanese never seemed to learn what H.P. Wilmott refers to as the "More you use, the less you lose' formula." To be fair, the Americans probably didn't fully understand this issue either, but circumstances seldom forced them to pay heed. Circumstance required that the Japanese learn this lesson quickly, and they failed.

Unfortunately, the two-MTW strategy envisioned by the QDR virtually acknowledges that Halt Phase airpower will be piecemealed into the fight in the second theater of a two-MTW scenario. "In the event of two nearly simultaneous major theater wars, certain specialized, highly-leveraged units or unique assets...would very likely 'swing' or be redeployed from one theater of conflict to another." Among these highly specialized assets are bombers and F-117 fighters—both mainstays of a Halt Phase in which airpower plays a predominant role. However, halting major force movements demands immediate action. Swing forces incur an inherent delay in employment as the forces are repostured for response in the second theater. The alternatives are unpleasant. Either wait until significant forces are available and, perhaps, miss the opportunity to execute the all important Halt Phase or commit forces piecemeal in some attempt to have

an immediate effect. Both alternatives put our military strategy (and grand strategy) at risk.

Sustainment

No force, no matter how large and technologically sophisticated, can be effective for long without adequate sustainment, and lack of support, as much as any other factor, ruined the Japanese effort to blunt the American onslaught at Guadalcanal. Partly as a result of the great distance from their seat of power on Rabaul, the Japanese forces on Guadalcanal were always short of supplies. American naval and air forces made delivery of Japanese supplies an extremely hazardous endeavor. Moreover, even when supplies reached Guadalcanal, the Americans frequently destroyed them before they could be consumed by the intended recipients. Finally reduced to forage and floating barrels, the Japanese had no hope of mustering the necessary power to eliminate the American threat. Conversely, the Americans were always able to keep enough materiel flowing to support their effort. Henderson Field was just as important to the logistics support operation as it was to the growing American combat capability in the area. Protected by air cover from Guadalcanal, American transports could move relatively freely in dangerous waters, even during daylight, while Japanese transports were menaced the same aircraft that protected the Americans. The difference was crucial. Indeed, Wilmott notes, "It was the U.S. ability to maintain convoys to Lunga Point and the Japanese inability to sustain their forces on Guadalcanal that decided the outcome..."¹²

The modern parallel is striking and disturbing. Whereas the Japanese were dependent on a seaborne sustainment capability that failed to operate with sufficient capacity, in a future Halt Phase operation we will be dependent on an airborne

sustainment capability that we know does not operate with adequate capacity. Recent estimates of the airlift capability required to support two nearly-simultaneous MTWs shows a need to move 49.7 million ton-miles (MTM) per day. Unfortunately, our current airlift capacity, including a fully-activated Civil Reserve Air Fleet, falls short by 4.3 MTM per day. 13 Worse, as a result of accelerated C-141 retirements and a lengthened time-frame for C-17 acquisition, the shortfall will grow rather than shrink for the next few years.¹⁴ Even when the entire C-17 force is fully operational, the "airlift gap" is only reduced to the present-day level.¹⁵ This discussion leaves out the operational rigidity imposed by a reduction in the overall number of inter-theater airlifters (since the 258 C-141s will be replaced by 120 C-17s) and the looming specter of even greater shortfalls if we do not soon settle upon a replacement capability for the aging C-5 fleet. A tenpercent shortfall may not seem like much, but this is more than just idle "for lack of a nail..." philosophizing. The rapidity with which Halt Phase operations must be executed places a premium on robust airlift. If all other elements of the system work perfectly, we will still be unable to supply the Halt Phase force with the appropriate level of materiel. Since we have traditionally traded materiel for lives, the alternative is disturbing. The conditions imposed on the Japanese by geographic circumstance and tactical situation, we are imposing on ourselves by programming, planning, and budgeting.

Multi-Dimensional Warfare

Of course, the Japanese might have mitigated their inability to mass and sustain forces by demonstrating a more thorough understanding of combined arms warfare at the operational level of war. That they did not is somewhat surprising since, in China, Japanese forces practiced a relatively high degree of coordination between air and ground

forces. After the campaign was over, General Alexander A. Vandegrift, the commander of the embattles Marines, observed in the Japanese "a flair for the tactically dramatic (Bushido)—[the] improvident 'Banzai' charge...initiated at long range and without fire superiority, it presented us with a gratuitous opportunity for annihilation by fire." Although Vandegrift was speaking tactically, his observation holds at every level of war. Normally, Japanese ground, sea, and air actions were conducted to achieve individual effects rather than joint goals. This failure was devastating. With limited capabilities on land and in the air (and, late in the action, on the sea as well), the Japanese could not hope to control the outcome of the situation unless they could leverage action in each medium to reinforce action in the others.

Ironically, given the pre-war predictions of the AWPD planners, the Americans achieved victory by integrating air, land, and sea forces into a cohesive whole. Airpower never operated independently of other forces. Even the B-17s—the *sine qua non* of strategic bombing—operated either in direct support of operations or to mold the environment in which operations were conducted. More important, the Cactus Air Force (itself a joint Army, Navy, Marine Corps effort) operated in direct support of operations in and around Guadalcanal. Without airpower, ground and naval operations would have been impossible. Conversely, the airmen and Marines could never have survived on Guadalcanal without the Navy which both protected and supplied the island forces. For their part, the ground forces of Guadalcanal protected Henderson Field, without which all would have been lost, from repeated enemy assaults. Had any of the forces failed, the operation would have failed. Herbert Christian Merillat, the 1st Marine Division's historian, underlines the importance of interdependence: "The most important lesson [of

Guadalcanal] was the need...for close-knit teamwork of sea, air, and land forces working in mutual support and mutual trust."¹⁷

So, not surprisingly, the Guadalcanal example suggests that the right Halt Phase force is a multi-dimensional force. As Wilmott notes, the key is "recognizing in the search for a joint approach to war the importance of diversity." As Lieutenant Colonel Ernest G. Howard demonstrates in his excellent analysis of the Guadalcanal campaign, although air power was vital during almost every part of the operation (and decisive in some), the true power of American forces was their ability to leverage the capabilities of forces in all media to overcome their numerical and technological shortcomings. ¹⁹

Modern Air Force planners may find some solace in a new RAND study, conducted under the guidance of David Ochmanek, on the effect of modern airpower in the Halt Phase. Using an exceptionally thoughtful model, the study proves that early-arriving forces (primarily air forces) can *theoretically* halt a limited-warning attack by an armorheavy, combined-arms force under very specific conditions, even if the attacker employs chemical weapons to reduce the "turn rate" of friendly aircraft.²⁰ In and of itself, this conclusion seems encouraging. It validates the capabilities airpower advocates have always claimed for air forces and tends to under-cut the argument that a single-dimension force isn't capable of getting the job done.

Unfortunately, the study also demonstrates that the programmed force, as opposed to the theoretical force modeled in the study, probably can't create the specific conditions required for to stop the notional attacking force. First, U.S. and allied forces do not possess the requisite levels of high-quality counter-armor munitions required to achieve the desired decisive halt. Forced to use less-capable munitions, U.S. forces are

substantially less likely to be able to halt an invading force.²¹ This effect is bound to be exaggerated in the second theater during a two-MTW scenario. Since the Halt Phase is just as important in the first theater as in the second, over-expenditure of high-quality munitions in the first theater at the expense of the second is a distinct possibility. Furthermore, the RAND model demonstrates that the desired outcome is exceptionally sensitive to changes in the availability of land-based airpower at the beginning of the conflict. Even a day or two delay in response—an extraordinarily likely event in the case of a nation already pre-occupied fighting a war in another theater—dramatically increases an attacking enemy's chance of success.²² Thus, while demonstrating the theoretical capability of a Halt Phase force composed primarily of air assets to stop a determined attacker in his tank tracks, the study also raises troubling questions about the ability of our programmed airpower to do the job.

Ochmanek's study italicizes the need for a multi-dimensional approach to the Halt Phase while simultaneously establishing a key shift in the relative weight of ground and air forces. Traditionally, airpower has been seen as a force to delay, disrupt, and channelize enemy ground forces while friendly ground forces accomplished the task of destruction. The RAND study strongly suggests that this relationship has reversed. A bulk of the destruction can be done by airpower. However, the ability to wreak *decisive* destruction from the air is enabled (not simply enhanced) by ground forces to delay and disrupt the enemy advance.²³ As dramatic as this change in orientation may be, it also reemphasizes the need for a multi-dimensional force. Thus, General Fogleman's description of the Halt Phase—"an area where air and space forces have a disproportionate value"—seems accurate in its strictest interpretation. However, General

Link's comments—"we can pretty much do that with modern airpower" seems likely only in the most ideal case, a case that probably can't exist in the second theater of a two-MTW scenario.

Attrition Warfare

Most strikingly at odds with the AWPD's pre-war postulations about war, the combat at Guadalcanal proved to be anything but bloodless. In the 1930s, the AWPD wanted to build a force that could prosecute a war without resort to the horrible attrition of WW I. In Hal George's words, "Air power has given to the world a means whereby the heart of a nation can be attacked at once without first having to wage an exhausting war at the nation's frontiers." [emphasis added]²⁴ Instead, what the air planners got at Guadalcanal was trench warfare in the air (presaging the air battles over Europe), and hardly any term better describes the overall battle than war of attrition. The quick, neat war envisioned by AWPD was, in fact, a brutal, protracted and incredibly expensive conflict—much like putting the two best prizefighters in the world in a ring the size of a dinner table and telling them to fight it out to the death. Broadly committed, the Japanese were unable to muster the requisite power to blunt or break the American thrust, even with their overall technological and material superiority. That the United States prevailed was almost coincidental and immutably linked to the tactical aviation that the AWPD explicitly sought to minimize.

Unfortunately, our planned strategic posture pre-commits us to a situation that resembles the Japanese strategic problem. In the second theater, a QDR Halt Phase force will find it extremely difficult to muster the power to crush a dedicated, aggressive enemy, precisely because we depend on a single-dimension force to carry the day. The

historical lesson is clear and ironic: the very force we build to avoid attrition warfare actually promotes attrition warfare. As Major General Jasper Welch (a bombing advocate) points out, "If the intensity[of attack] is not high enough, then history teaches us that target systems adapt to the air attack...These adaptations markedly increase the total weight of effort required." By developing a strategy and force structure, no matter how well-intentioned, that emphasizes single-dimension attack and severely limits the amount of effort applicable to the enemy, we markedly increase the cost of victory in both blood and treasure.

Consequences and Conclusions

Unfortunately, in the current strategic environment, the United States can ill-afford the style of attrition warfare to which these incompatibilities between strategy and force structure doom us. Partly as a result of past success and partly as a result of unfettered media access to combat zones, casualties of any magnitude are unacceptable. The public expects success—cheap success. As General Charles A. Horner noted recently, "Public sensitivity to casualties can dominate our political and military decision making." While the Japanese may have had some tolerance for the high cost of folly at Guadalcanal, we don't have the luxury of squandering irreplaceable resources—including the good will of the people.

The lessons of Guadalcanal strongly suggest that by concentrating on cheap strategies for winning the Halt Phase, we may be setting ourselves up for the very attrition warfare we explicitly seek to avoid. Both the proponents of the RMA force and the proponents of a single-dimension solution to the Halt Phase problem would do well to review the historical record. Otherwise, having traded brute force for the magic of

technological dexterity, we may be left waiting for our beanstalk to grow. As Dr. Earl Tilford points out, "[T]he era which is dawning...is not the end of history nor is it so radically different from all that came before that the study of the past has no relevancy."²⁷ As Guadalcanal teaches, mass and sound operational employment of forces weigh at least as heavily as technological sophistication on the modern battlefield. However, we continue to pursue technological superiority at the expense of force structure, a step that increases our level of risk during the Halt Phase and especially in the second theater during two MTWs. Furthermore, sustainment capability remains a key factor in deciding the outcome of battle. By neglecting our sustainment capability, we assume vastly increased risk, especially if operations do not proceed to a rapid conclusion. Finally, and most significantly, the need for a multi-dimensional combat capability is a key to victory. By pursuing a strategy that explicitly emphasizes limited-dimension attack, we again assume significantly greater risk on the field of battle when opposing a multi-dimensional force. Collectively, these lessons and our ignorance of them raise significant concerns about our ability to prevail rapidly in future conflicts.

Failure to address these concerns will be costly. Like the our logical forebears, the air planners of 1941, our very desire to avoid attrition warfare may make it inevitable. The difference, of course, is that today we are far less capable of prevailing in an attrition-style conflict. Today, we are much more like the Japan of 1941 than the America of 1941and are prone to the same operational and strategic failures. When General Kaugichi Kiyotake, one of the early Japanese commanders on Guadalcanal said, "Guadalcanal is not the name of an island. It is the name of the graveyard of the Japanese Army," he expressed more than the totality of Japanese casualties during the

battle, some 27,000 men out of an army of 4 million.²⁹ Kiyotake was acknowledging that great strategic defeats often spring from relatively small operational failures. In our search for solutions to the daunting strategic and operational challenges we face as we enter a new century, we risk strategic failure by ignoring operational truths. In our headlong pursuit of cheap victories, we must recall that there are no cheap defeats.

Notes

- ¹ Alvin D. Coox, "Recourse to Arms, the Sino-Japanese Conflict, 1937-1945" in *China and Japan, A Search for Balance Since World War I*, edited by Alvin D. Coox and Hilary Conroy, 304.
- Quoted by John A. Tirpak, "Airpower: Past, Present, and Future," *Air Force Magazine*, July 1997, 41. (pp.40-44)
- ³ Quoted in Max Brand, Fighter Squadron at Guadalcanal (New York: Pocket Books, 1996) 46.
- ⁴ Taken from a personal note by Lt Gen Millard F. Harmon, contained in "Memos on Operations, etc. Mostly Guadalcanal, New Georgia, Bougainville. Jan-July 1943" File number 750.312-2 in USAF Collection, Air Force Historical Research Agency, Maxwell AFB, Al. Harmon, an Army Air Forces flag officer, was the commander of all Army forces in the South pacific at the time. Although the note is unsigned, the hand-writing makes it clear that it's Harmon's note. The note is also undated but is inserted in an otherwise chronological file between messages dated 13 Jan 43 and 20 Jan 43. Therefore, it's a safe assumption that the note was written during the middle of January 1943, before the end of the Guadalcanal operation but after the issue had been decided. The discussion between McCain and Harmon may not have been in reference to Guadalcanal at all since the dreadful P-400 saw service in several areas before being phased out for more capable aircraft, but the observation pithily summarizes the general feel about the P-400 as a pursuit fighter at Guadalcanal and elsewhere.
 - ⁵ Mueller, 51.
- ⁶ Vandegrift, *Final Report*, "Phase IV" File Number 180.1-1, Part 4, Annex H in USAF Collection, Air Force Historical Research Agency.
- ⁷ Major Robert H. Ballard, *Historic Battle Analysis—Operation Watchtower* (Maxwell AFB, Al.: Air University, 1983) 17.
 - ⁸ Dull, 198.
 - ⁹ QDR, vii.
- ¹⁰ H.P. Wilmott, "Guadalcanal, the Naval Campaign," *Joint Force Quarterly*, Autumn 1993, 99.
 - ¹¹ QDR, 31.
 - ¹² Wilmott, 100.
- ¹³ United States Transportation Command figures, 10 Feb 97 Briefing by Maj Gen Charles H. Coolidge Jr., USTRANSCOM Director, Operations and Logistics.

Notes

¹⁴ William G. Palmby, "Enhancement of the Civil Reserve Airfleet: An Alternative for Bridging the Airlift Gap, "Research paper for School of Advanced Airpower Studies (Maxwell AFB, Alabama: Air University, 1995) 14.

¹⁵ Coolidge, 10 Feb 97.

Vandegrift, *Final Report*, "Phase III, Organization of the Lunga Point Defense, 10-21 Aug 1942," File Number 180.1-1, Part 3, p. 14 in USAF Collection, Air Force Historical Research Agency.

¹⁷ Herbert Christian Merillat, *Guadalcanal Remembered* (New York: Dodd, Mead & Co., 1982) 289.

¹⁸ Wilmott, 105.

- ¹⁹ Lieutenant Colonel Ernest G. Howard, *Demand the Advantage: When is Air Power Central to a Campaign* (Maxwell AFB, Al.: Air University, May 1992) 82-83.
- ²⁰ David Ochmanek, Edward Harshberger, and David Thaler, "Winning the Halt Phase of Future Theater Conflicts (DRAFT)," (Santa Monica CA: RAND Corporation, Sep 97) 53.
 - ²¹ Ibid. 64.
 - ²² Ibid. 58.
 - ²³ Ibid. 71.
- ²⁴ General Hal George, quoted in *The Air Plan that Defeated Hitler* by Haywood S. Hansell, Jr., (Atlanta, Georgia: Higgins-MacArthur/Longino & Porter, Inc., 1973) 34.
- ²⁵ Major General Jasper Welch, "Why the Bomber Question is so Controversial," *Strategic Review*, Winter 1996, 19.
- ²⁶ General Charles A. Horner, "What We Should Have Learned from Desert Storm, but Didn't," *Air Force Magazine*, December 1996.
- ²⁷ Earl H. Tilford, Jr., *The Revolution in Military Affairs*, available on-line at http://carlisle-www.army.mil/usassi/ssipubs/pubs95/rmapros/rmaprop1.htm.
 - ²⁸ Twining, ix.
 - ²⁹ Hammel, 435.

Bibliography

Guadalcanal

Primary Sources:

- Combined Operations Headquarters, Lessons Learned from the Guadalcanal Operation 1942, Bulletin No.Y/17, December 1943, File Number 508.171Y-17 in USAF Collection, Air Force Historical Research Agency.
- Cooley, Colonel A.D., USMC, Commander, Marine Air Group 14 at Guadalcanal, Interview, 17 May 1943, Typed Transcript, File Number 180.451-23 in USAF Collection, Air Force Historical Research Agency.
- Harmon, Lt Gen Millard F., Interview, 14 June 1944, Typed Transcript in USAF Collection, Air Force Historical Research Association.
- History of the 67th Fighter Squadron (Single-Engine), Activation-31 December 1943, File Number SQ-FI-67-HI in USAF Collection, Air Force Historical Research Agency.
- Inuguchi, Capt Rikibei, Imperial Japanese Navy. United States Strategic Bombing Survey, Interrogation Number 62, undated, File Number 137.73-4, Typed Transcript in USAF Collection, Air Force Historical Research Agency.
- "Memos on Operations, etc. Mostly Guadalcanal, New Georgia, Bougainville, Jan-July 1943," File Number 750.312-2 in USAF Collection, Air Force Historical Research Agency.
- Merrillat, H.C.L., *The Island, a History of the First Marine Division on Guadalcanal, August 7-December 9, 1942*, New York: Houghton Mifflin Company, 1944.
- Office of Naval Intelligence, *Solomon Islands Campaign*, part of the Combat Narratives series, File Number 180.601A in USAF Collection, Air Force Historical Research Agency. Pertinent records are found in the following volumes (volumes indicated with more than one volume number are bound as one document)
 - Volume I, "The Landings in the Solomons, 7-8 August 1942"
 - Volumes II-II, "The Battle for Savo Island, 9 August 1942," and "The Battle of the Eastern Solomons, 23-25 August 1942"
 - Volumes IV-V, "Battle of Cape Esperance, 11 Oct 1942" and "Battle of Santa Cruz Island, 26 October 1942"
 - Volume VI, "Battle of Guadalcanal, 11-15 November 1942"
 - Volumes VII-VIII, "Battle of Tassafaronga, 30 Nov 1942" and "Japanese Evacuation of Guadalcanal, 29 January-8 February 1943"
- Ohmae, Capt Toshikazu, Imperial Japanese Navy. United States Strategic Bombing Survey, Interrogation Number 192, 30 October 1945, File Number 137.73-6, Typed Transcript in USAF Collection, Air Force Historical Research Agency.

- Vandegrift, Maj Gen Alexander A., USMC. First Marine Division Commander's Final Report on Guadalcanal Operations, File Number 180.1-1 in USAF Collection, Air Force Historical Research Agency.
- ———, Interview, 3 February 1943, File Number 142.034-1, Typed Transcript in USAF Collection, Air Force Historical Research Agency.
- Watanabe, Capt Y., Imperial Japanese Navy. United States Strategic Bombing Survey, Interrogation Number 192, 15 October 1945, File Number 137.73-6, Typed Transcript in USAF Collection, Air Force Historical Research Agency.

Secondary Sources:

- Adams, Capt. Henry H., USNR. 1942: The Year That Doomed the Axis, New York: David McKay Company, Inc., 1967.
- ———, Years of Expectation; Guadalcanal to Normandy, New York: McKay Publishers, 1973.
- Atlas for the Second World War, Asia and the Pacific, part of "The West Point Military History Series," Thomas E. Griess, Ed., Wayne, N.J.: Avery Publishing Group Inc., 1985.
- Birdsall, Steve. *Flying Buccaneers*, Garden City, New York: Doubleday & Company, Inc., 1977.
- Blackburn, Tom. The Jolly Rogers, New York, Orion Books, 1989.
- Bradley, John H. and Dice, Jack. *The Second World War, Asia and the Pacific*, part of "The West Point Military History Series" Thomas E. Griess, Ed., Wayne, New Jersey: Avery Publishing Group, Inc., 1984.
- Brand, Max. Fighter Squadron at Guadalcanal, New York: Pocket Books, 1997.
- Braun, Saul M. The Struggle for Guadalcanal, New York: G.P. Putnam Sons, 1969.
- Chennault, Claire L., Way of a Fighter, New York: G. P. Putnam's Sons, 1949.
- Craven, Wesley Frank and Cate, James Lea. *The Pacific: Guadalcanal to Saipan*, Volume Four of "The Army Air Forces in World War II," Chicago: University of Chicago Press, 1950.
- Dull, Paul S. A Battle History of the Imperial Japanese Navy (1941-1945), 4th Ed., Annapolis, Md., Naval Institute Press, 1978.
- Ferguson, Robert Lawrence. *Guadalcanal, The Island of Fire*, Blue Ridge Summit, Pennsylvania: TAB BOOKS Inc., 1987.
- Frank, Richard B. Guadalcanal, New York: Random House, 1990.
- Griffith, Samuel B. The Battle for Guadalcanal, New York: Lippincott, 1963.
- Hammel, Eric. *Guadalcanal, Starvation Island*, New York: Crown Publishers, Inc., 1987.
- Hansell, Major General Haywood S., Jr. *The Air Plan That Defeated Hitler*, *Hitler* Atlanta, Georgia: Higgins-McArthur/Longino & Porter, Inc., 1972.
- ——. *The Strategic Air War Against Germany and Japan*, Washington, D.C.: Office of Air Force History, United States Air Force, 1986.
- Higham, Robin. *Air Power: A Concise History* (Revised Third Edition), Manhattan, Kan.: Sunflower University Press, 1988.
- Hoyt, Edwin P. The Airmen, New York: McGraw-Hill Publishing Company, 1990.
- Lee, Robert Edward. Victory at Guadalcanal, Novato, Cal.: Presidio Press, 1981.

- Liddell Hart, B.H. *History of the Second World War*, New York: G.P. Putnam's Sons, 1971.
- Merillat, H.C.L. Guadalcanal Remembered, New York: Dodd, Mead Publishers, 1982.
- Miller, John G. *Guadalcanal: The First Offensive*, Volume Two of "The War in the Pacific" sub-series, "History of the United States Army in World War II," Washington, D.C.: Historical Division, Department of the Army, 1949.
- Miller, Nathan. *The Naval Air War 1939-1945*, Annapolis, Md., Naval Institute Press, 1991.
- Miller, Thomas G. Jr. *The Cactus Air Force*, New York: Harper and Row, Publishers, 1969.
- Morison, Samuel Eliot. *The Struggle for Guadalcanal August 1942-February 1943*, Volume Five of "History of United States Naval Operations in World War II," Boston, Mass., Little, Brown and Company, 1949.
- Mueller, Joseph N. *Guadalcanal 1942, The Marines Strike Back*, London, United Kingdom: Osprey, 1992.
- Office of Assistant Chief of Staff, Intelligence, United States Army Air Forces. "Pacific Counterblow," Washington, D.C.: Center for Air Force History, United States Air Force, 1992.
- Overy, R.J. *The Air War 1939-1945*, Chelsea, Mich.: Scarborough House/Publishers, 1991.
- Perret, Geoffrey. Winged Victory, New York: Random House, 1993.
- Spector, Ronald H. Eagle Against the Sun, New York: Vintage Books, 1985.
- Toland, John. The Rising Sun, New York: Random House, 1970.
- Tregaskis, Richard. Guadalcanal Diary, New York: Random House, 1943.
- Twining, Gen Merrill B. *No Bended Knee: the Battle for Guadalcanal*, Novato, California: Presidio Press, 1997.
- Vandegrift, A.A. (as told to Robert B. Asprey). *Once a Marine*, New York: Ballantine Books, 1966.
- van der Vat, Dan. *The Pacific Campaign*, *World War II*, New York: Simon & Schuster, 1991
- Wilmott, H.P. "Guadalcanal: The Naval Campaign," *Joint Force Quarterly*, Autumn 1993, 98-106.
- Winton, John. War in the Pacific, Pearl Harbor to Tokyo Bay, New York: Mayflower Books, Inc., 1978.
- Zimmerman, John L. *The Guadalcanal Campaign*, Washington, D.C.: United States Marine Corps Historical Division, 1942.

Staff Studies and Papers:

- Ballard, Maj Robert H., USAF, "Historic Battle Analysis—Operation Watchtower: Guadalcanal (7 August 1942-9 February 1943)" Maxwell AFB Al., April 1983.
- Close Air Support in the War Against Japan. USAF Historical Study Number 86, February 1955, File Number 101-86 in USAF Collection, Air Force Historical Research Agency, Maxwell AFB, Al.
- Heaivilin, Lt Col Gale E., "War Planning Assumptions and Errors in Military Strategy," Maxwell AFB Al., May 86.

Howard, Lt Col Ernest G., "Demand the Advantage: When is Air Power Central to a Campaign," Maxwell AFB Al., May 1992.

Halt Phase Strategy, Planning, and Force Structure

Primary Sources:

- Fogleman, General Ronald R., USAF, Testimony to the Committee on National Security, United States House of Representatives, 22 May 1997 available on-line at http://www.house.gov/nsc/97-5-22Fogelman.htm.
- Link, Maj Gen Charles D., "The New View of Airpower," *Air Force Magazine*, August 1997, 50-51.

Secondary Sources:

- Blaker, James R., "The American RMA Force: An Alternative to the QDR," *Strategic Review*, Summer 1997, 21-30.
- "Building the Force Structure," Defense, October 1993, 11-14.
- Caldwell, Nathaniel French, Jr., "Faint Praise: National Defense Panel Assesses QDR," *Sea Power*, July 1997, 47-49.
- Caldwell, Stephen L., "Beyond the BUR," *Armed Forces Journal International*, March 1997, 39-41.
- "Defense Strategy for a New Era," *Defense*, October 93, 2-10.
- Gerry, Col Alexander A. C., "ROA Analysis of the Quadrennial Defense Review," *ROA National Security Report*, July 1997, 23-25.
- Goodman, Glenn W., Jr., "Cueing the QDR," Armed Forces Journal International, February 1997, 12.
- Haffa, Robert P., Jr., "A 'New Look' at the Bottom-Up Review: Planning U.S. General Purpose Forces for a New Century," *Strategic Review*, Winter 1996, 21-30.
- Holzer, Robert and Mark Walsh, "Call for Aircraft Cuts is 'Somewhat Soft," *Air Force Times*, 21 July 1997, 26-27.
- Krepinovich, Andrew F. Jr., "Assessing the Bottom-Up Review," *Joint Force Quarterly*, Winter 1993-94, 22-24.
- ——, "The Clinton Defense Program: Assessing the Bottom-Up Review," *Strategic Review*, Spring 1994, 15-25.
- McAndrews, 1st Lt Kevin, "Unraveling the QDR," *National Guard*, July 1997, 16-18.
- McNamara, Lt Col Steve, "Assessing Airpower's Importance," *Armed Forces Journal International*, March 1997, 36-37.
- Owens, Mackubin T., "The QDR and Future U.S. Security," *Strategic Review*, Summer 1997, 3-4.
- Pendley, William T., "Mortgaging the Future to the Present in Defense Policy: A Commentary on the Bottom-Up Review," *Strategic Review*, Spring 94, 36-29.
- "Pentagon Says QDR Findings Will Delay F-22," Jane's Defence Weekly, 20 Aug 97, 6.
- "Quadrennial Defense Review, The: A Sense of *Déjà Vu*," *The Defense Monitor*, March 97. 1-8.
- Steele, Dennis, "QDR—A Question of Strategy," Army, August 1997, 11-12.

- Sheehan, General John, "Building the Right Military for the 21st Century," *Strategic Review*, Summer 1997, 5-13.
- Summers, Colonel Harry G., Jr., *The New World Strategy, A Military Policy for America's Future*, New York: Touchstone, 1995.
- Tirpak, John A., "Projections From the QDR," Air Force Magazine, August 1997, 42-49.
- Van Riper, Lt Gen Paul, and Maj Gen Robert Scales, "Preparing for War in the 21st Century," *Strategic Review*, Summer 1997, 14-20.
- Welch, Maj Gen Jasper, "Why the Bomber Question is so Controversial," *Strategic Review*, Winter 1996, 17-20.
- Wilson, George C., "Review: Cut 55,000 Troops," Air Force Times, 12 May 97, 4.

Staff Studies and Papers:

- "Bottom-Up Review: Analysis of DOD War Game to Test Key Assumptions," Washington DC, United States General Accounting Office, June 1996.
- Cohen, William S. "Report of the Quadrennial Defense Review," Washington D.C., May 1997.
- Dunn, Lt Col Colin K., "National Security Strategy: A Bottom-Up Review," Carlisle Barracks PA: U.S. Army War College, 29 March 1996.
- Nicholson, Major John W., "Blainey and the Bottom Up Review: Increased Potential for Miscalculation and War in the 21st Century," Fort Leavenworth Kan.: School of Advanced Military Studies, 6 May 1994.
- Ochmanek, David, Edward Harshberger, and David Thaler, "Winning the Halt Phase of Future Theater Conflicts: Exploiting Advances in Firepower, (DRAFT)" Santa Monica, Cal.: RAND Corp., September 1997.
- Spinney, Franklin C., "Quadrennial Defense Review: What Went Wrong? How to Fix It (Version 2.3)," A condensed version of a longer report that is still in preparation. 20 June 1997.
- Tilford, Earl H., Jr., *National Defense into the 21st Century: Defining the Issues*, Carlisle Pa.: Strategic Studies Institute, June 1997.
- ———, *The Revolution in Military Affairs: Prospects and Cautions*, available on-line at http://carlisle-www.army.mil/usassi/ssipubs/pubs95/rmapros/rmaprop1.htm.
- Turner, Carolyn S., "Quadrennial Defense Review: A Bibliography," Washington, D.C.: National Defense University Library, June 1997.

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